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The Amateur Radio
COMMUNICATOR

NOVEMBER/DECEMBER 1993 FOR THE NOVICE AND TECHNICIAN AMATEUR Volume 3 Number 6

- Antenna Connectors for Dual-Band Radios
- NARA Reviews Kenwood's TS-50S
- The Art of SWLing
- Radio Satellite Communications—MICROSAT
- Dan and Burke

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ON THE COVER

A full-featured HF transceiver you can take virtually anywhere and that won't put a dent in your pocketbook? Impossible, you say. Well, here it is...this month we review Kenwood's palm-sized HF transceiver and give it NARA's coveted Award of Amateur Radio Excellence.

Happy holidays from all of us at NARA!

The Amateur Radio Communicator

The Amateur Radio Communicator is published bi-monthly and is the official journal of the National Amateur Radio Association (NARA), P.O. Box 598, Redmond, WA 98073-0598.

The National Amateur Radio Association is incorporated in the State of Washington and is a non-profit organization as defined in Section 501(c)(3) of the Internal Revenue Service Code.

Organization Goals

The broad goal of NARA is to publicize Amateur Radio and to encourage people to become Amateurs by earning an entry level Novice or Technician Class license.

The organization has five specific goals within this broad framework. These are to a) publicize Amateur Radio to the general public, b) attract young people to the Amateur Radio Service, c) increase the stature and benefits of the Novice and Technician Class licenses, d) represent the interests of Novice and Technician Class Amateurs at the national level and e) make all Amateurs aware that our radio frequencies are in jeopardy from commercial interests. More specifically:

A. NARA advertises in various consumer publications to create public awareness of the Amateur Radio Service.

B. NARA is interested in encouraging young people to join our fraternity. A core of young people insures growth of the Amateur Radio Service.

C. NARA believes that the Novice and Technician classes are important and respected entry level licenses into the Amateur Radio fraternity. We are committed to increasing their benefits and stature in the Amateur Radio community.

D. NARA is committed to representing the interests of all Novice and Technician Class Amateurs at the national level. We continue to review information from the Federal Communications Commission and submit material to them with the Novice and Technician perspective in mind.

E. Finally, NARA is very concerned that confiscation of frequencies assigned to the Amateur Radio Service will continue. NARA is committed to obtaining new spectrum for the continued growth in numbers of Novice and Technician Class Amateurs.

Membership and Subscriptions

Those joining NARA receive a subscription to *The Amateur Radio Communicator* for one year. The combined cost of membership and magazine is $10.00 per year in all areas with a U.S. ZIP code.

The NARA membership and subscription to *The Amateur Radio Communicator* cannot be separated.

It is not necessary to hold an Amateur Radio license to become a member of the National Amateur Radio Association. The only "qualification" is an interest in radio communications.

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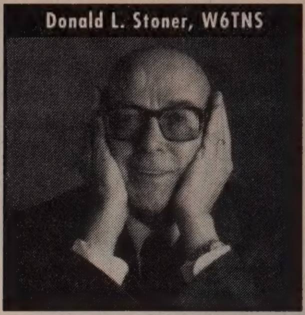

Donald L. Stoner, W6TNS

I'll Have A Pizza With Sausage, Pepperoni and Anchovies

by Don Stoner, W6TNS

BY NOW, MOST OF OUR readers know that Part 97.113 of the Federal Communications Commission Rules and Regulations has been drastically changed. Part 97.113 relates to the "business use" of ham radio.

Prior to September 12, 1993, an Amateur could not say anything over the air that would aid the business affairs of any commercial activity. This total prohibition was quite restrictive and led to considerable controversy.

Obviously, one could not fire up their transmitter and extol the virtues of a company or business. That's called *broadcasting* and it is still forbidden by Part 97.113. Broadcasting is mentioned in several questions on the Novice and Technician test (Elements 2 and 3A). But I'm not talking about broadcasting.

Let's say you call your bride on the way home from work via the club's repeater autopatch. She wants you to pick up some bread for dinner. So far, so good. But if she says "Pick up some Wonder Bread, it makes great sandwiches." Ooops, she just stepped over the line and aided the business affairs of the Wonder Bread Company. Ridiculous, you say? You bet.

And, of course, there was the ever-present "kilocycle kops," those who patrol the spectrum pointing out minor infractions to increase their own self-importance. Many arguments have heated up the air waves, debating this or that. Was it legal to order a tow-truck, via ham radio, if you had an auto failure? Certainly this would facilitate the business affairs of the tow-truck company. Could you use the local repeater autopatch to call the ham radio store and ask what time they closed?

Pizza Anyone? The Part 97 rules, prior to September 12, 1993, prompted the famous "pizza question" on the Novice test. Question 2A30.3 asked, **"On your way home from work you decide to order pizza for dinner. When would you be permitted to use the autopatch on your radio club repeater to order the pizza?"** At the time, the correct answer was "*(D) Never. This would facilitate the commercial affairs of a business.*" Now the correct answer would be anytime you want (assuming you didn't own or work for the pizza parlor).

> The rules have been relaxed so that you cannot use your Amateur Radio to facilitate the commercial affairs of *your* business or those of your employer.

What's Different Now? The rules have been relaxed so that you cannot use your Amateur Radio to facilitate the commercial affairs of ***your*** business or those of your employer. In legalese, the FCC states it in the following way:

(a) No amateur station shall transmit:

(3) Communications in which the station licensee or control operator has a pecuniary interest, including communications on behalf of an employer. It appears that anything not covered in Part 97.113 is legal.

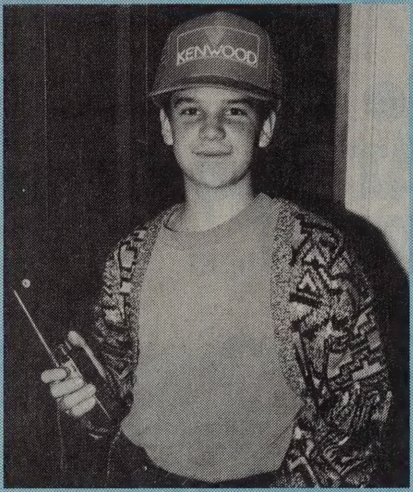
This is a simplified discussion of the changes. There is a lot more information contained in the revised Part 97.113, and you should be aware of the changes. If you don't have a copy of Part 97 in your hamshack, how can you defend yourself when the "kilocycle kops" attack? (Yes, they'll still be around. This breed has no fear of extinction). You can purchase a copy of the Part 97 Rules and Regulations, published by the National Amateur Radio Association, at all major ham radio stores. Make sure it is effective as of September, 1993, or it will not have the latest revisions (Part 97, Novice VE testing and Call Sign Administration).

What About The Future? What do these changes mean for ham radio? Certainly your family can benefit, since ham radio can now be used for more personal communications. The relaxation should take much of the pressure off packet node operators, who must be careful about the content of messages that pass through their system.

I get excited about the political uses of ham radio, under the revised Part 97.113. We can now use the packet network to send messages to our legislators, tell others who supports ham radio and who does not. Some the activities, presently "in the works," lead me to believe that ham radio will become a very powerful political tool.

I also quiver when I think of the new ways that ham radio can be used in the education world. For example, Part 97.113(5)(c) says "A control operator may accept compensation as an incident of a teaching position during periods of time when an amateur station is used by that teacher as part of classroom instruction at an educational institution." This provision should help to increase the number of school club stations, something in which NARA is very interested.

THE FUTURE OF OUR HOBBY



Meet 12-year-old Richie Kendrick, KD6KZP. He is currently a Tchnician but is working on his code and is anxious to upgrade to General as soon as possible.

In addition to his interest in packet radio, Richie is very active in 4-H where he is a junior leader; he is an honor student; and he studies the piano. It would also appear that he is a Kenwood fan!

Is the new Part 97 a cure all for the previous problems. Maybe, but it will also introduce new problems. The FCC will still get "can I do this?" questions. The only difference is the envelope will be pushed a little further. And there will always be those who try to take advantage of the FCC Rules to "feather their own nest." Even so, in my opinion, ham radio is better off with this relaxation of the Rules. Time will tell.

73, Don, W6TNS ❑

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Carole Perry, WB2MGP

Beam Me Up, Scotty! MICROSAT Has Arrived

by Carole Perry, WB2MGP

IN APRIL 1989, I HAD THE pleasure of meeting a very dynamic teacher, Dave Reeves KF6PJ at the NASA Educator's Conference, (for the Magellan launch at the Kennedy Space Center) in Orlando, Florida. Dave and I, being fellow hams, immediately found each other amongst all the other teachers in attendance. We've been corresponding ever since, exchanging ideas and sharing classroom experiences. I'll be showcasing different schools in this column in order to pass along some of the most creative and innovative uses of radio in the classroom.

The students at Chaminade College Preparatory in West Hills, California, became interested in space science when they participated in the 1985 SAREX project and got an SSTV picture from astronaut Tony England, W0ORE, on the space shuttle "Challenger." With the help of physics teacher Dave Reeves and engineer Mike Tweedy, KA6SPT, the students have maintained an ongoing space science program using the OSCAR Amateur Radio satellites.

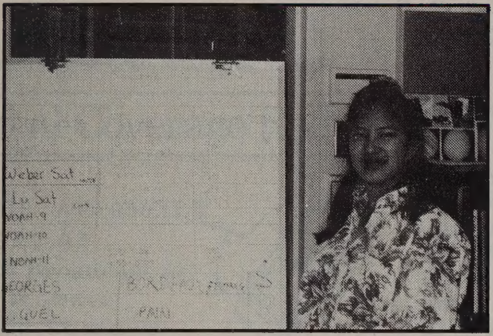
Students Winita Khiani, Caroline Maglalang and Wendy Watson sent me information about their activities at Chaminade. Many amazing activities occur there including MICROSAT, or in other words, project-oriented science. MICROSAT is made up of three essential areas: radio satellite communication, Global Positioning Satellites (GPS) and weather satellites, and INTERNET computer communications.

Brandon Cangiano and Edward Pilatowitz working on the antenna system.

MICROSAT is made up of three essential areas; radio satellite communication, weather satellites and GPS, and INTERNET computer communications.

Radio satellite communications deal mainly with two satellites, PACSAT and WEBERSAT. PACSAT helps the students communicate with different parts of the world. This is done through the students' versatility in various foreign languages. The different locations spoken to are France, Spain, Italy, Poland and South Africa. This is also known to the students as "Global Village." In addition to communication, the students in the physics classes also study scientific data retrieved from the satellite.

Various students at Chaminade have also shown their talent in this field. Edward Pilatowitz, for example, won first place in engineering in the



Caroline Maglalang proudly stands beside the board which represents the "Global Village."

L.A. County Science Fair for his experiment on solar cells. Robert Reeves, another excellent student, won first place in applied mechanics in the California State Science Fair for his experiment on spin reversal.

Another radio satellite, WEBERSAT, is used to bring down color pictures of the Earth. It is also used for the newly activated spectra experiment and impact sensor.

The second main project in the physics classes is the weather satellite and GPS. In addition to ham radio communication satellites, the Chaminade students also use NOAA weather satellites and GPS. The earth science class has recently acquired live pictures of the west coast of the United States from the NOAA satellite. Physics students are even using GPS to navigate their cars through the student parking lot!

The third project is INTERNET. This enables the kids to have communications with top scientists, such as Jim White, WD0E, and Tom Davis, EA2CLS/I3. This has been a positive experience for the students. The earth science class is also able to detect earthquakes and solar energy. Geos pictures are taken down from INTERNET.

Amongst their accomplishments is the fact that the science students are known for their excellent work in editing the AMSAT Education Newsletter. Articles from the *Los Angeles Times* and *Daily News*, a stack of video tapes with no less than nine network and local TV news reports, and the ARRL SAREX video tell the story of the past seven years of the students' involvement with ham radio in space. The physics students at Chaminade are not only broadening their horizons, they're blazing ahead.

73 from Carol, WB2MGP ❑

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Christina Gedang operating the satellite's ground station.

Newcomer Lingo

by Hans Brakob, K0HB

TALKED TO A young fella on the repeater the other day who introduced himself by saying "my personal is Jim and you're my first contact." Seemed like a nice sort, delighted that he had just received his shiny new call sign, and anxious to make some new friends. Kinda sounded like I felt when I put my new call sign on the air the first time way back when, except probably brighter, 'cuz Jim is one of those young computer jocks.

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Me, I still got problems with the LL scale on my Pickett slide rule. Yep, I think Jim sounded brighter than me, quick to catch on to things.

But I don't think Jim will be back on the repeater.

Before I had a chance to really get to know much about Jim, or even wrangle an invite to lunch, another station, with an impressive "senior" call sign joined the contact, flashed his shiny Radio Cop badge, and proceeded to issue Jim a "verbal speeding ticket" for improper lingo on the radio.

"Radio Cop" said the term "personal" (and for that matter "handle") were unwelcome in ham radio, and generally made my newfound friend feel like an unwashed interloper. (Gosh, I've been saying "handle" but I was a conditional class. Slow to catch on, you know.)

Now I should point out that "Radio Cop" took pains to appear very well meaning. Didn't use any bad words that I noticed, was quite polite, even seemed like he was trying to be "helpful." In other words, he thought he was doing Jim a favor by pointing out his transgression from our sacred Amateur Radio way of doing things.

I think Jim felt just the same way I did back in a new school in third grade when the well-meaning teacher pointed out that "we don't keep our pencil behind our ear in this room." Sure enough, I looked around and none of my new classmates had pencils behind their ears. Sure was embarrassing, and at that moment I really wished I was back with my good old buddies in second grade.

Now, if I'd been allowed to hang out a couple of days, I'm sure I would have learned how to properly stow my pencil.

And if Jim would have hung around a couple of days on our repeater, I just bet he would have noticed that his lingo, perhaps learned in another radio service, was a bit out of place, and pretty soon Jim would sound "just like the rest of us."

Like I said, he seemed pretty bright to me, quick to catch on to things.

"Radio Cop", you have kept our hobby uncorrupted. I heard Jim down around 27 Mhz this morning trying to sell his barely used 2-meter HT. I'm gonna miss my new friend Jim, because I think I could have learned something from him. Maybe you could have also. Like I said, he seemed pretty bright to me, quick to catch on to things.

Gee, what do you think Jim caught on to?

de Hans, K0HB, OFE ❑

(Reprinted courtesy of Twin Cities FM Club newsletter, "Quarterwave").

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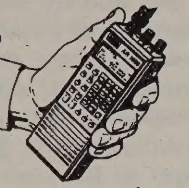

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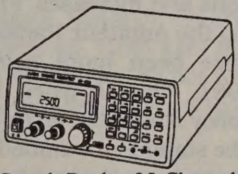

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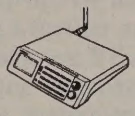

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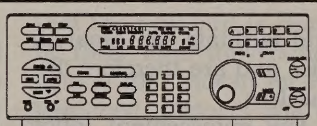
Continuous Coverage



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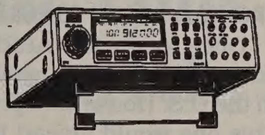

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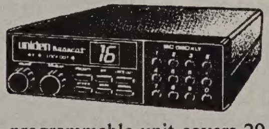

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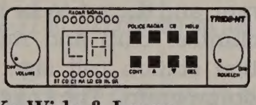

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Coverage of above units is: 29-54, 136-174, 406-512, plus Air in 172 and 210 and air plus 800MHz in the 855. Fax facts #675

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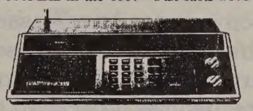

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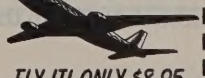

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The Washington Newsline

by Bill Pasternak, WA6ITF

FCC PREEMPTS STATES ON HAM GEAR IN CARS

The FCC says states cannot tell hams not to operate mobile or portable rigs just because these radios have the potential of listening to frequencies outside of the amateur bands. The commission took this strong position on August 20th when it enacted an ARRL requested declaratory ruling that preempts most state statutes and local ordinances affecting transceivers used by amateurs.

The laws attacked in FCC Private Radio Docket 91-36 were those that some states have passed to prohibit the possession of transceivers if they are capable of receiving on certain frequencies other than the ones used by hams. When it filed for the declatory ruling the League told the FCC just about every transceiver on the market allows for incidental reception of frequencies adjacent to amateur bands. This is in order to ensure adequate performance within the amateur bands. The League also said that amateurs have special needs for out-of-band reception, a fact the marketplace long has recognized by offering transceivers to accommodate those needs.

And the FCC agreed. It says that state and local laws that make possession of amateur transceivers in vehicles or elsewhere illegal merely because they can receive certain frequencies, is defiantly preempted by federal law. The Commission says that such local and state laws are inconsistent with the federal laws that promote and facilitate the Amateur Radio service and are therefore illegal in themselves.

Several law enforcement lobby groups have been vocal in their opposition to any member of the general public having the ability to listen in on their transmissions, but none are expected to challenge this declatory ruling which is limited only to FCC licensed radio amateurs.

PRO HAM BILL IN CONGRESS

Once again the ARRL has been successful in getting a bill introduced in the U.S. House of Representatives. This one would amend the communications act to facilitate utilization of volunteer resources on behalf of the Amateur Radio Service.

Through HR 2623, the League in seeking protective legislation for many amateurs who are reluctant to participate in volunteer programs due to the possibility of personal liability. This includes the Amateur Auxiliary of the FCC's Field Operations Bureau, the volunteer examiner program, and the yet-to-be implemented volunteer club and military recreation station call sign administration program. The League says that volunteer monitors face the prospect of being accused of bias or other motives, and that volunteer examiners may fear being blamed by an examinee for failure to pass a test. The ARRL believes that legislation is needed to eliminate an obstacle to volunteer participation in these programs, as well as to prevent civil actions against good-faith volunteers.

FCC ISSUES NEW FINE SCHEDULE

The FCC has also issued a new schedule of suggested base amounts for monetary fines, with some reductions and increases. Fines for breaking the Amateur Radio Part 97 rules have been more numerous since 1991. This is when the first FCC policy statement on fines was issued. The statement outlined standards for assessing monetary forfeitures. Most have gone to people who used the ham bands without first getting a license. The remainder were issued to hams who violated the prohibitions on the transmission of indecent language, and for malicious and willful interference to other amateurs.

Up to now, the typical monetary forfeiture assessed for Part 97 violations under the 1991 guidelines has been in the area of $2,000. The FCC said that the new schedule allows it more leeway in adjusting forfeiture amounts up or down, depending on circumstances.

WA4D FINE UPHELD

And speaking about fines, word has it that Michael Whatley, WA4D, has been ordered to pay an FCC Notice of Monetary Forfeiture for $2,000. This after Commission denied a request from Whatley that it reconsider the Notice of Apparent Liability it issued to him in November of 1992.

Whatley had been accused of allegedly causing willful and malicious interference based on FCC monitoring on 7257 and 7258 kHz. According to the FCC, Whatley asked the FCC's Field Operations Bureau for copies of recordings of the transmissions in question and also requested a 30 day extension of time in which to respond to the NAL.

The bureau said it granted Whatley the time extension and provided him with both the tape and a transcript of it. Whatley then argued that other amateur operators were interfering with his transmissions, that the transcripts were incomplete and not reflecting all communications which were recorded on tape. He also argued that the parties to other communications on the band ignored his attempt to—as he called it—"compromise."

But on August 20th, the FCC said it was not persuaded by Whatley's arguments. It said—and we quote—"Mr. Whatley's actions and communications indicate hostility towards the net members on 7255 kHz that were communicating, and do not support his claim that he intended to be conciliatory."

With that, the FCC ordered WA4D to pay a $2,000 fine. Whatley was given thirty days to pay up. He also has the option of filing a further appeal before the commissioners. If that fails WA4D still has the expensive recourse of taking the matter into federal court.

CHILE MICROSAT

The first MICROSAT from Chile, named *Cesar 1*, will be launched in early 1995. This announcement was made by the Radio Club Federation in Santiago, that will control the bird once it is in orbit. The group says that the new bird is being designed by three local universities with the help of the Chilean Air Force. Once launched, *Cesar 1* will orbit at an altitude of 900 km. The Federation hopes that *Cesar 1* will assist in communication between the radio amateurs in Chile and the rest of the world.

73 de Bill Pasternak WA6ITF ❑

Overheard at HRO the other day...

A new ham came into the radio store to return a CW filter which he had purchased for his Kenwood HF transceiver. The salesman behind the counter wanted to know what was wrong with the filter.

The new ham explained that he had installed it per the supplied instructions, but when he turn on the radio, he could still hear CW!

From The Intermod, June 1993 via Groundwave, published by the St. Paul Radio Club.

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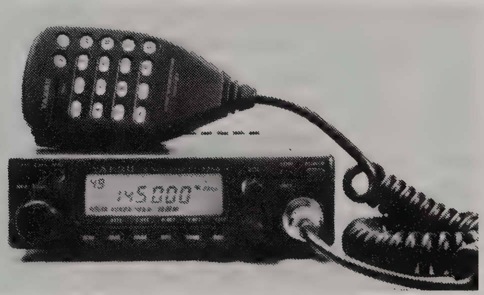

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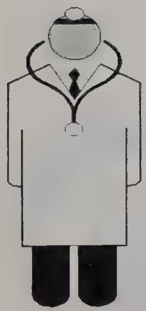

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THE ADVENTURES OF Dan & Burke

Operation Worm Warming

Dan and Burke were riding along the river road on a beautiful, crystal-clear winter day. Dan was driving, and Burke was sitting beside him holding his compact MFJ-QRP CW 80-meter transceiver on his knees. The bright day seemed all the brighter because it had arrived after almost a solid week of heavy winter rains.

"Berko, do you think we'll be able to hear that transmitter back in our laboratory?" Dan asked.

"I'd hate to say," Burke answered. "We'll only be four or five miles from it, and it'll be running 150 watts. But a transmitting antenna consisting of the outside shield of fifty or sixty feet of RG-8/U coax cable running inside a sewer isn't the best radiator in the world. You said the signal was only S3 at your place right next door.

"But from what I've been reading," he continued hopefully, "it's barely possible we may be able to hear the signal down in that limestone cave along the river. Anyway, if we can't hear the signal, we can do some "plinking" with your .22 rifle, so the afternoon won't be wasted."

"That coax pushed into the basement drain a lot easier than I expected," Dan observed; "and it certainly loaded the transmitter. What time did you set the timer to turn on the transmitter and start the automatic keyer?""Three o'clock. That will give us plenty of time to rig up an antenna inside the cave. The transmitter will send my call letters over and over for a full half hour before shutting itself off."

"Has anyone had much luck sending radio signals through the earth?"

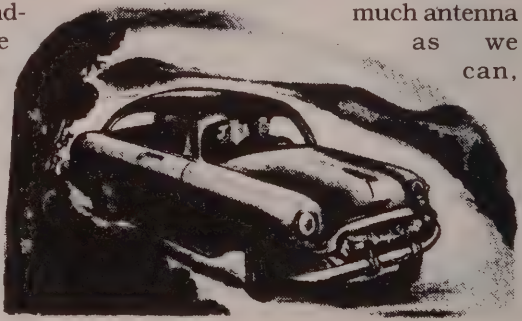
"Well, in May 1959, a California company, called Zilch Electronics, sent a message from an abandoned borax mine at Boron, California, to a point more than 100 miles away. Based on that success, our military became very interested in a transmission system buried deep in the earth and not dependent on vulnerable transmission lines, relay towers, and so on. Even an atomic attack could not destroy such a system. Millions of dollars were spent on underground radio communications experiments. Today, our Navy uses very low radio frequencies for communicating with submarines all over the world. Many hams in different parts of the world have carried on experiments designed to send signals through the earth. At typical ham power and on Amateur bands, however, most of them have been failures or very limited successes."

"How did Zilch Electronics send the message?" Dan wanted to know as he pulled the car off the road and parked it beneath an overhanging limestone cliff. "The signal from the transmitter went up to the earth's surface and excited the ground-atmosphere interface. Because of the discontinuity between the conducting earth and the non-conducting atmosphere, the waves traveled along this interface in a manner similar to the way high frequency alternating current travels along the outside surface of a conductor. When the signal came to a point above the receiving station, it went down through the earth to the receiver."

"Is that the way you think the signal will travel from our sewer antenna to the cave?"

No, I'm hoping we may hear the signal through wave-guide action. You see, beneath the earth's topsoil are layers of sedimentary rock-some wet, some dry. The wet layers act as the boundaries and the dry layers as the interiors of natural wave guides, and a radio wave of the proper frequency can go along between two wet layers just as a UHF signal goes along a metal wave guide. Right now the soil itself is sopping wet from the rain storms. I'm hoping that the soil will form the top and that a wet layer of sedimentary rock down below will form the bottom of a wave guide which will lead the signal right into our cave. It'll be more luck than sense if we hear the signal, but we'll never know until we try."

"Okay," Dan said as he got out of the car. "I'll take the rifle, the gasoline lantern, and the bundle of dowel sticks; you bring the transceiver and that old field coil from a dynamic speaker. We want to string up as much antenna as we can,



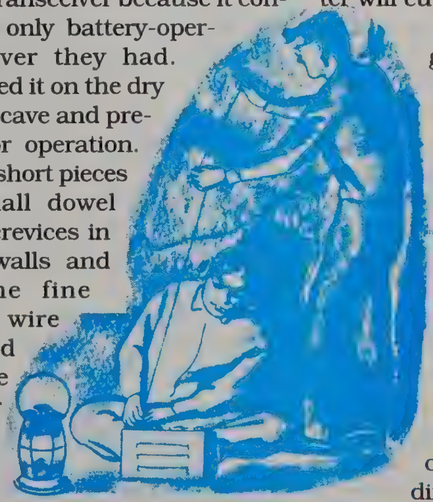
and there must be half a mile of fine wire on that coil."

The boys began walking down the steep path that led to the river and the cave entrance, but they started to slide and ended up on the rocky ledge bordering the stream amid a small landslide of loose stones and muddy earth.

"Whew!" Dan exclaimed as he picked himself up and brushed off his clothing; "that ground is sure soft. It's a good thing the rain stopped when it did or the road would be sliding into the river." A few minutes later they were back a couple of hundred feet in the narrow, twisting cave that ran into the limestone bluff.

"Guess we may as well set up shop here," Dan said as he held the lantern high above his head and looked around. "I've never gone beyond this point myself, but I think the cave peters out pretty quickly. You check out the receiver, and I'll string up some wire for an antenna."

The boys had brought along the MFJ QRP transceiver because it contained the only battery-operated receiver they had. Burke placed it on the dry floor of the cave and prepared it for operation. Dan stuck short pieces of the small dowel stick into crevices in the cave walls and strung the fine enameled wire stripped from the speaker field coil on the crude but adequate insulators. He snapped the end of the wire loose from the spool, and Burke scraped off the insulation and fastened it to the antenna post of the receiver. They tuned the receiver back and forth across the 80-meter CW band with the beat frequency oscillator (BFO) turned on. But they were unable to hear a single weak heterodyne even though they knew the band must be busy on a Saturday afternoon.



Well," Burke observed, "if we hear anything, it's going to have to be our own transmitter, which should be turning itself on about now. Listen hard right around 3700 kilohertz."

He turned the gain full on so that the cave was filled with the loud hissing of the sensitive receiver, but not a trace of a signal could be heard on the 3700 kHz frequency of the transmitter. They tried putting a ground on the receiver. They tried shortening the antenna. Finally, they even carried the receiver to the other end of the antenna and connected it there. Nothing made any difference. Not a sound, outside of the background hiss, could be heard.

"Well, that's that," Burke said as he glanced at his wrist watch and shut off the receiver. "The transmitter will cut itself off now."

"It may as well," Dan growled. "All it did was warm the fish worms with the RF. Let's take the rifle and—"

He was interrupted by a low rumbling sound that seemed to come from the distant mouth of the cave. It continued for several seconds and then stopped.

"Earthquake!" Dan shouted, leaping to his feet and heading for the cave entrance at a lope. Ordinarily Burke was not as quick as Dan, but this time he was right at his chum's heels when the former sprawled headlong and smashed the lantern he was carrying. The cave was plunged into darkness.

"Quit walking on me!" Dan said indignantly, pushing Burke off him and scrambling to his feet. He took a flashlight from his pocket and turned it on. The beam revealed a tapering wedge of mud and loose stones that went from the floor of the cave—all the way up to the roof. In his haste, Dan had slammed into it. "Wow!" he exclaimed in awe. "An earthslide has covered the cave entrance. We're in a bind now."

"Yeah," Burke agreed. He took the flashlight and carefully inspected the wall of mud still oozing toward them and the sides of the cave. "I remember that this point was ten or fifteen feet inside the cave," he announced; "so we know the wall of earth is at least that thick. We could never dig through it without tools."

"Someone will find our parked car and start looking for us, won't they?" Dan asked in a hoarse voice that abruptly squeaked on the last word he spoke.

"Maybe, but where will they look? They'll never think of this cave now that the entrance is covered up. Actually, not too many people know about it anyway. But let's not hit the panic button. Let's go on back to the transceiver."

"Lot of good that will do us," Dan muttered as he examined the shattered mantles of the kerosene lantern. "Strong signals can't even get into this hole; so our four or five watts won't have a fat chance getting out. I'm going to do a little exploring farther back in the cave. Maybe there's another way out."

Dan went ahead with the flashlight, and Burke was right behind him. The walls of the cave narrowed quickly and soon the roof dipped down until the boys had to stoop to proceed.

"It ends in a solid wall about ten feet ahead," Dan said over his shoulder. "Hey, wait a minute!" He scrambled ahead on his hands and knees and then bent his head back and looked upward. "Berko!" he exclaimed, "I'm looking right into a sort of chimney that goes straight up through the rock. It's about three or four feet across, and I'd guess it was seventy-five to a hundred feet to the top; but I can see blue sky up there, and is it ever pretty!"

He backed out and let Burke crawl into the narrow space to examine the opening.

"Well, at least we won't suffocate,"

Burke concluded as they returned to where they could stand up.

“Maybe we could build a fire and someone would see the smoke,” Dan suggested hopefully.

“We could if we had something to burn and if the smoke didn’t smother us before anyone saw it,” Burke discouraged him.

“How about yelling up the chimney?”

“Think hard, nerdly. We’ve been up on that bluff above the car. Try to picture where the top of this opening must be.”

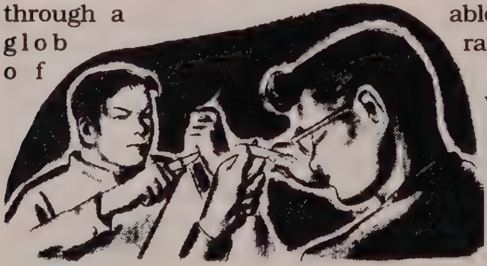
Dan nodded glumly. “Yeah, I know; it’s right in the middle of that big briar patch. No one but rabbits would be traipsing around in there.”

He turned off the flashlight to conserve the batteries, and the two boys sat silent in the pitch darkness.

“If we just had some way of getting a wire outside for an antenna, we could use the transceiver to get help,” Burke mused. “How about your throwing a rock with a wire tied to it up through that hole?”

“Oh, sure! Should I do it lying on my back or toss it up over my shoulder while I’m on my hands and knees?” Dan asked sarcastically. “Whitey Ford himself couldn’t throw a rock up to the top of that hole in the position he’d have to take. We need a trench mortar- Hey! That’s it! Turn on the light and start shaving down one of those dowel sticks with your knife until it will fit loosely in the barrel of the rifle. Get a move on. The state traffic net meets in forty-five minutes, and Chuck, back in town, is net control tonight. If anyone can hear us, he will.“

While Burke was working down the dowel stick, Dan pried the lead bullet from a .22 cartridge and sealed the powder in the case by shoving the sharp edge of the brass case through a glob of chewing gum. This was inserted in the chamber of Dan’s bolt-action rifle, and the long, slender wooden stick was pushed down the barrel until the end was resting against the chewing-gum wadding. Next, Dan stripped fine wire from the field coil and carefully arranged it in a huge spiral directly beneath the vertical opening. The end of the wire from the center of this flat coil was securely fastened to the wooden stick at the point where it emerged from the muzzle.



Finally, Dan used loose rock to wedge the rifle securely against the side of the chimney with its sights aimed squarely at the center of the blue patch of sky above.

“I guess we’re ready,” Dan said.

“Fire one!” Burke shouted.

Dan pulled the trigger, and there was a muffled explosion. The coil of wire disappeared in a blur of motion except for a dozen or so outside turns.

“That did it!” Dan said joyfully as he peered up the opening. “We must have had three or four hundred feet of wire in that coil. Fasten the end to the transceiver and let’s see if we can hear anything.“

This took only a minute. The boys grinned triumphantly at each other in the glow of the fading flashlight as Burke tuned across the crowded 80-meter band and heard signal after signal coming in loud and clear. He threw the switch to “Transmit” and checked the transmitter loading. It wasn’t too good, but splicing in some extra wire brought a current loop to the transmitter terminals and enabled the transmitter to draw its rated current.

By this time, their friend Chuck was already calling the roll of net stations. Burke carefully zeroed on the frequency, and when Chuck stood by for “any station with traffic,” Burke broke in with a “QRR.”

Chuck acknowledged him instantly.

“How are we coming in?” Burke asked.

“Great. What’s wrong?”

Burke explained the situation, and Chuck told him to stand by while he did some telephoning. In five minutes he was back with the news that the sheriff and some other men were on their way.

The two boys sat in the darkness and listened to the net while they waited. It did not seem quite so lonely with the familiar voices of their ham friends echoing around the cave.

It was only a half hour later that they heard the voice of the sheriff calling down the shaft. A rope was lowered, and first Burke and then Dan was pulled to the surface.

When the boys tried to explain what they had been doing in the cave, the sheriff just shook his head in bewilderment and said, “Never mind. Just go home and stay there!”

Minutes later, as Dan drove along the river road, Burke remarked, “Well, I’d not call ‘Operation Worm Warming’ a great success, would you?”

“No,” Dan said with a shiver, “but I’m not complaining. For a while there I thought it was going to turn into ‘Operation Worm Feeding,’ with us on the menu. By the way, what would have happened if we didn’t know Morse?”

Burke’s eyes widened and the only sound in the ole Chevy was that of the purring GM engine.

Dan and Burke is based on a storyline created in 1954 by John Frye, W9EGV. The boys are the sons of John’s original characters, Carl and Jerry.

John Frye is no longer with us. But while he was alive, John was an avid Amateur Radio operator who wrote about young people—for young people.

It’s doubtful that anyone could make John’s stories more interesting or improve on his words. We’ll settle for giving them a 1990s twist.

LACK OF TASTE IS TIMELESS

This note is for those of you concerned with "x-rated repeaters", the use of on-air expletives, the problems of intentional QRMing and jamming and the appropriate regulatory response.

You should know that these issues have been around since the earliest days of Amateur Radio operating—in fact, even before the days of mandatory licensing.

Consider the following article from the *New York Times* of Wednesday, January 30th, 1910. It appeared on page four under the headline "*DENY WIRELESS MISCHIEF—Young Experimenters Say They Have Not Power to Reach Distant Stations*"

"Special to the New York Times"

MONTCLAIR, NJ, Jan. 29- On behalf of the wireless operators of Montclair, some 140 in number, who have been accused of sending profane and indecent messages through the air, Arthur P. Morgand and A. B. Cole, two boys who have been pioneers in the local experiments, have come to the defense of their colleagues in a public statement. They deny that the wireless amateurs in Montclair have offended by sending out indecent messages or causing trouble by sending false information to Government stations by the use of "stolen codes."

"They assert that there is no wireless station in this town which can transmit as far as Newport, R.I, whither, it was charged, the profane messages were sent, or over a radius of more than fifteen miles, and this only under exceptional weather conditions, while there are not more than six of the stations that can transmit more than two miles. The boys say they never use "stolen codes" to give false or other orders to the government stations.

"The local wireless amateurs assert that the persons who are agitating Government supervision of wireless are the representatives of a commercial concern which wishes to gain and hold a monopoly of the air for its own business to the exclusion of all competitors and the experimenters, and which is at present using petty interference troubles as a means to this end.

Thanks to Rich Samuels, KF9KV, and CompuServe's HAMNET

ARE YOU EXPECTING YOUR LICENSE SOON?

The current wait is approximately eight weeks!
The following is a list of the FCC's most recently issued call signs as of September 1.

District	Group A Extra	Group B Advanced	Group C Tech/Gen	Group D Novice
0	AA0OR	KG0HW	N0YJG	KB0LLM
1	AA1HG	KD1QU	N1QBM	KB1BDK
2	AA2PI	KF2QV	N2WEQ	KB2QOE
3	AA3FS	KE3JR	N3QAO	KB3AYE
4	AD4JB	KR4BL	++	KE4FBE
5	AB5PD	KJ5PJ	++	KC5CNE
6	AB6VY	KN6QI	++	KE6AOT
7	AA7YG	KI7QS	++	KB7YBV
8	AA8MD	KG8DQ	++	KB8PKS
9	AA9ID	KF9RF	N9URQ	KB9IUZ
Hawaii	++	AH6NC	WH6OQ	WH6CQV
Alaska	++	AL7PF	WL7MO	WL7CHF
Virgin Is.	WP2B	KP2CC	NP2GQ	WP2AHU
Puerto Rico	++	KP4VQ	++	WP4MJF

++All call signs in this group have been issued in this area.

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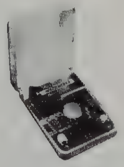

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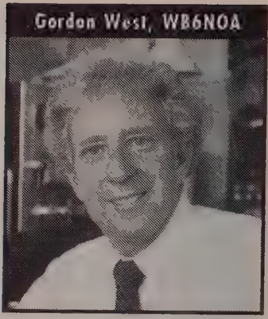
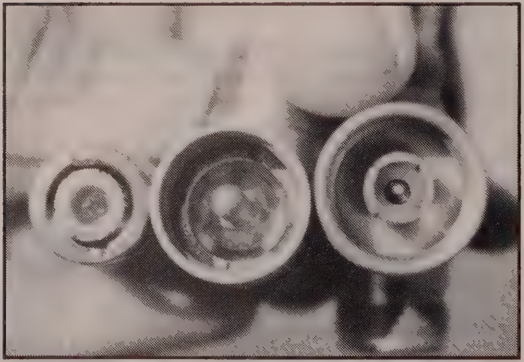


Antenna Connectors For Dual-Band Radios

by Gordon West, WB6NOA

> If you go with a dual-band transceiver, as you first get started with ham radio, you will literally double your fun communicating and scanning over the airwaves.



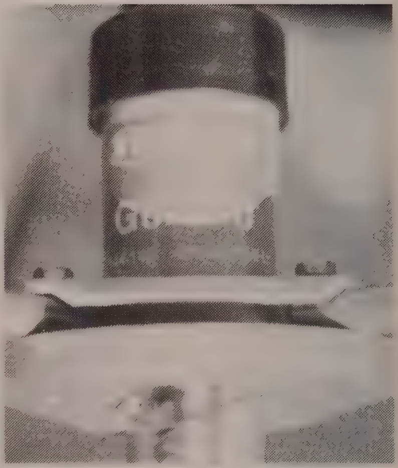
Left to right—BNC, VHF connector and type N connector.

MANY HAMS JOINing our hobby are starting out with dual-band transceivers. The two most popular bands are two meters (144 MHz-148 MHz) and 70 cm (440 MHz-450 MHz). Most dual-band transceivers will also offer extended receive frequency capabilities beyond each band edge. The 2-meter receive capability may be as great as 144 MHz-165 MHz and on 70 cm the receiver may cover 440 MHz-465 MHz.

The dual-band handhelds have a single antenna receptacle, called a "*BNC*" jack. The antenna that comes with your dual-band handheld is that little flexible rubber whip that simply twists onto the BNC jack.

If you use your handheld in the car (mobile), you will want to consider an outside dual-band antenna for increased range and performance. Attempting to use the little rubber antenna inside a vehicle could lead up to a huge drop in performance for VHF, and a significant drop in performance at UHF frequencies (from "*Two Way Personal Radio Systems Design*", General Electric Company). The stations you contact will scream at you to get an outside antenna!

The mobile dual-band antenna comes in many sizes and shapes, and usually costs under $100, including a simple mount and coax cable. Go with a relatively short and low-gain dual-band mobile antenna for use with your handheld. The shorter antenna will easily mount to a trunk lip, or to a vehicle's gutter, and will be short enough to get into most parking garages. The low gain (about 3 dB per band) will also prevent your handheld from getting overloaded with incoming signals creating squawks and squeaks that may be annoying when driving in the big city.

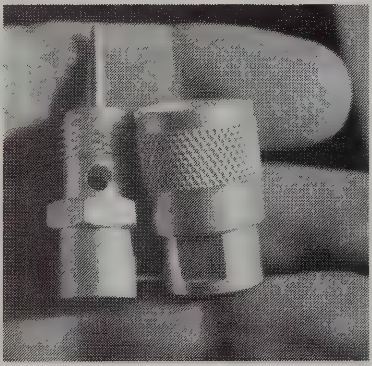


The commercial-made dual-band antenna has a single coax input, featuring a type N connector.

You will also need a *SO-239 to BNC adapter*. This fitting interconnects the PL-259 on the end of a typical antenna cable to a BNC connection like the one on your handheld radio. Some dual-band antenna manufacturers, like Comet (714-630-4541) are now switching over to an antenna jack with interchangeable connectors. Great idea—screw on the connector of your choice, and gingerly screw that onto your handheld.

Be extremely careful when you screw on an external antenna connection to your handheld. The BNC jack is fragile on the inside. It's held onto the circuit board by a very tiny wire. If you flex the antenna jack on your handheld, you risk lifting the solder trace on the circuit board. Be careful!

On 25- and 40-watt, dual-band, mobile transceivers, go with a dual-band antenna with at least 6 dB of gain on VHF, and at least 8 dB of gain on UHF. This will give you an extremely powerful signal without the use of an external power amplifier. This taller dual-band antenna is about five feet in length, and must be lowered when entering a parking garage. Many dual-band, high-gain antennas have some unique lay-down capabilities that you wouldn't immediately recognize just by looking at them. A hidden spring on the inside allows you to pull the antenna up, and then over for a quick lay-down maneuver!



New to Ham Radio—a simple N connector to solder on your coax. Find them at most hamfests.

Once you run your coax to your transceiver, you will discover that something is missing. You probably have one antenna cable, but two antenna jacks coming out of your set. If so, you will need to purchase a device called a "duplexer" that splits apart the single antenna cable into two pigtail jumpers—one going to your 2-meter VHF antenna port, and the other going to your UHF 440 MHz antenna port. The duplexer is about a $75 option that is absolutely required if you run one antenna for a transceiver that has two output jacks. But maybe your dual-band set already has a duplexer built in. How do you tell? Look and see how many antenna jacks you have. If you have only one antenna jack for both bands (such as on the Yaesu 5200), no external duplexer required. Other (ICOM and Kenwood) mobile radio manufacturers have two outputs. You must supply your own duplexer or two-antenna system. This keeps the transceiver very small. Why put two antennas on your vehicle when one dual-band antenna and one duplexer will be just as efficient?

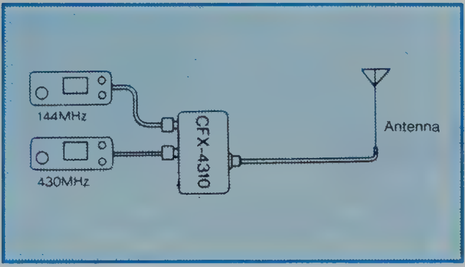
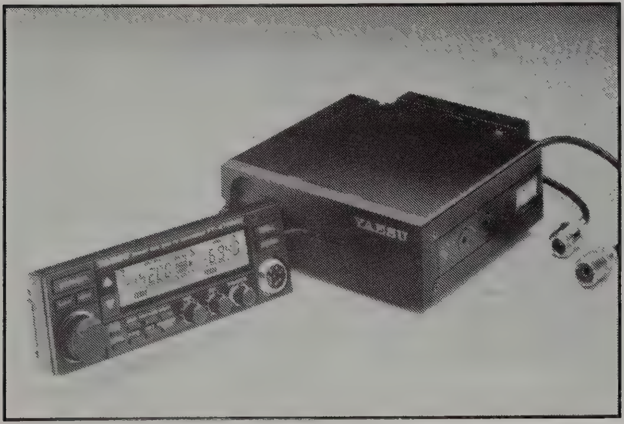


Diagram of a duplexer.



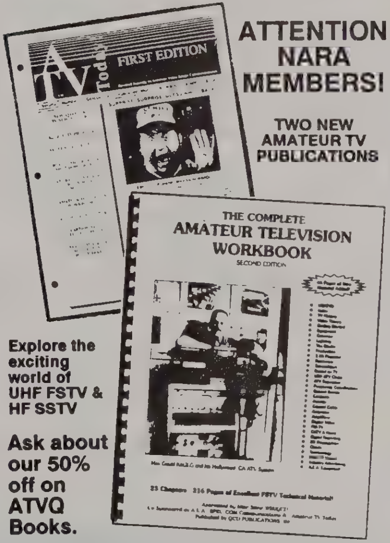
Yaesu dual-band VHF/UHF with remote head capabilities. The duplexer is built-in with seperate output connections.

Wait—there is one more consideration. Make sure the duplexer you purchase is the right design for the type of jack you have on the end of your antenna cable and on the end of your transceiver's antenna output. Some manufacturers of 70 cm antennas use a type "N" connector. This means you will need a type "N" plug on your duplexer pigtail that will screw right into your radio's UHF type "N" jack. Stay away from those little adapters—they can lose some signal at 440 MHz.

Once everything is hooked up, antenna tuning is seldom necessary. The antennas are broad-band, and are pre-set for the center of each ham band. For extended receive, no tuning necessary.

If you go with a dual-band transceiver, as you first get started with ham radio, you will literally double your fun communicating and scanning over the airwaves.

73, DE Gordon, WB6NOA ❑



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NARA Reviews Kenwood's TS-50S HF Transceiver

by NARA Staff

KENWOOD,USA introduced the TS-50S only a few months ago. It is being hailed by Amateurs as the smallest and most innovative HF transceiver to be offered in many years. That general description seems right on the mark. The transceiver is complete and quite a deluxe low band rig—you can actually hold it in one hand. The TS-50S is ideal for home, portable, or mobile operation, easy to operate, a hot performer, and perfect for new Amateurs and old-timers alike. This little marvel carries an affordable price tag—a feature everyone appreciates today more than ever before. We were so impressed with the TS-50S, NARA granted its "*Award Of Amateur Radio Excellence*" to Kenwood, USA, for this product.

Kenwood's affordable TS-50S HF transceiver is small enough to hold in one hand, but is packed with plenty of full-sized features.

Our first impression? The Kenwood TS-50S functions like a full-size HF transceiver with plenty of extras shrunk to fit in a cabinet no larger than many 2-meter/70cm FM-mobile units. The only significant difference between the TS-50S and a "big rig" is the exclusion of a built-in automatic antenna tuner and a reduced number of IF filtering stages. We believe both are acceptable tradeoffs for the rig's size and price class.

Explained another way, the TS-50S combines the circuitry and performance equal to or better than Kenwood's TS-140 with the features and frills of their TS-440 or TS-450. Lack of an internal antenna tuner is not a significant deficiency. A coupler is seldom needed with a good low-SWR antenna, and you can always add the optional AT-50 tuner if desired. Likewise, extensive IF filtering is not a serious consideration unless you are a big-time contester or consistently battle DX pileups on "strong signal bands" like 20 through 160 meters. Amateurs on a limited budget are not subjected to "overbuying" with a TS-50S. What a terrific way to get started in the fascinating world of HF communications!

The TS-50S has numerous additional attributes, but for now

AMATEUR RADIO AWARD OF EXCELLENCE

NARA

The National Amateur Radio Association is pleased to announce another Award of Amateur Radio Excellence.

There are a few products on the market that represent outstanding bargains, or exceptional value, performance and usefulness to beginners. NARA believes these products should be recognized and recommended to our members.

One such product is the TS-50S, manufactured by Kenwood / Communications Products, In Long Beach, California, which is reviewed in this issue of *The Amateur Radio Communicator.* We believe that this tiny transceiver represents an outstanding bargain based on price/performance criteria. As such, it should be an ideal first rig for a newcomer who has just received his or her Tech-Plus upgrade, and who can operate on the HF bands.

Remember, we look to our members to recommend products which, in their opinion, meet the criteria of "outstanding bargain and/or exceptional value, performance and usefulness to beginners."

Manufacturers who receive the National Amateur Radio Association's Award of Amateur Radio Excellence receive a plaque which can be displayed, along with the right to use the award symbol in advertising for that product.

let's shift our focus and discuss its general specifications.

Physical Characteristics- Kenwood's new dream rig is neatly housed in a dark gray case measuring 2.25 x 7.0 x 9.5 inches (H,W,D) and weighing a mere 6.4 pounds. It has a large multi-function LCD readout with adjustable backlighting, well-engineered front panel, top-mounted speaker, and built-in heatsink with a "mouse-quiet" cooling fan. A regular 6-pin DC socket like used with Kenwood's TS-140, TS-430/440/450, etc. is included on the rear panel. This socket makes transceiver changes a plug-in cinch (particularly attractive for quick-upgrading an existing mobile setup). Sockets for keying an external linear amplifier's T/R switch and ALC connections are also included on the rear panel.

Electrical Specifications- The TS-50S covers all nine HF bands—10 through 160 meters with 100 watts output on SSB and CW, 50 watts output on FM, and 25 watts on AM. It also features general coverage reception from 500 KHz to 30 MHz, scanning, all-mode squelch, and dual VFOs plus 100 memories that can be set to store fixed frequencies or tune the transceiver's full range like additional VFOs. Overviewing the transceiver's front panel controls reveals many popular features like RIT, IF Shift, noise blanker, and AIP/ATTN. The attenuator is useful to vary receiver sensitivity according to band and signal levels. The front panel description does not tell the full story, however. A large number of additional features can be accessed via the TS-50S internal menus. You hold the "F Lock" button depressed two seconds, scroll through selections with the tuning knob, then quick-change settings with the "Up/Down" buttons. Some of these less-obvious functions include selection of power output, microphone gain, AGC speed, and CW T/R delay time. Unquestionably, the TS-50S is small in size and big in performance!

On-the-air operations with the TS-50S proved more fun than hitting the road in a new auto. This little rig has an outstanding receiver, clean-sounding transmitter, and plenty of big-time DXing "frills" everyone will like. Since NARA's prime objective is to help newcomers get started in Amateur Radio, we elected to initially evaluate the TS-50S "operator friendliness" by using it before reading the Owner's Manual (a real acid test). Please understand that the sole purpose of this step was to evaluate the transceiver's ease of operation. A new owner should always study a rig's manual and have a clear idea of how to use it before hitting the power switch.

The TS-50S passed our "goof proof" exam with flying colors! You can just press the front panel's "Up/Down" buttons to select a band, dial a frequency, and transmit. If adjacent-frequency interference becomes troublesome, the IF Shift does a good job of restoring signal readability. The transceiver proved so easy to use we even scrolled through menus during contacts and changed settings like mic gain, AGC, power output, etc. according to personal preference. The noise blanker also works quite well for reducing automobile ignition noises. Although the TS-50S does not have a speech compressor for SSB, our wattmeter indicated respectable "talk power" for punching through to DX stations. Audio reports on "both ends" of QSOs reflected Kenwood's famous full-bodied quality. Talking with Amateurs thousands of miles away while using a transceiver small enough to slip in a brief case or backpack was a unique experience! CW operation deserves special mention. Its T/R switching delay is selectable over a wide range and also includes full break-in. This mode is quiet and smooth up to 30 wpm. Nice!

The TS-50S checked out so good we felt obligated to find at least one negative point with the little rig. The TS-50S does not have a fully adjustable RF gain control. However most Amateurs set and forget that adjustment, anyway.

In conclusion, we wish to thank Kenwood, USA, for allowing us to check out and review this "world's smallest HF transceiver." It would make a fantastic Christmas present for any Amateur, and it would be the perfect gift for newcomers presently limited to working only VHF/UHF bands. There is an exciting new world awaiting you on HF, and joining the fun with a TS-50S is truly going first class!

The TS-50S is supported by a full line of mating accessories, including its optional AT-50 automatic antenna tuner, PS-33 DC power supply, MC-85 desk mic and 500 kHz YK-107C CW filter. For more information on the transceiver and its accessories, call one of the Amateur Radio Dealers advertising in *The Amateur Radio Communicator*.

To obtain a free brochure on this fine rig, write Kenwood Communications Corporation, Amateur Radio Products Division, P.O. Box 22745, 2201 East Dominquez Street, Long Beach, CA 90801-5745.

73 de NARA Staff ❑

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The Art of SWLing

by Matt J. McCullar, KJ5BA

MANY HAMS started out as SWLs—Short Wave Listeners. It is easy to understand why. No license is required, there are no exams to take, and you can discover the thrill of listening to what's going on in other countries by the citizens themselves. Once SWLs discovered that some short-wave broadcasters issue their own QSL cards, they were hooked!

THANK YOU FOR LISTENING

Why do SW broadcasters bother to send out reception reports in the first place? Overseas mail isn't cheap. The primary reason is to build a reputation for being a good responder so that listeners will tune in to their programs. Religious stations are therefore highly responsive to QSL requests. Another reason is to build a good statistical record of reaching U.S. listeners. Such statistics help the station manager to prove the success of his broadcasts and to justify his budget requests (some things really are universal!). Therefore, anything you can add to your report that indicates your sincere interest in the station's future broadcasts or in the country itself may make a supreme difference in whether or not you receive an answer.

WHERE DO I START?

The SWL's bible is the latest issue of *World Radio TV Handbook*. It is available at larger bookstores and through mail-order. It lists shortwave stations and, more importantly, their policies on reception reports. These days, QSL policies change about as often as your underwear. There may be a shakeup in management, personnel, or the country itself.

An additional tool in SWLing is a tape recorder. When the announcer recites the station's QSL address, he or she may go too fast for you to write it down directly. A tape recorder helps a lot when you're listening to a foreign language in case you need to translate something. The best time to listen to a foreign-speaking station is when some important world event takes place—like the Olympics, the election of a president, an assassination, an earthquake, etc. It's easier to pick out prominent names and places this way.

GIVE THEM WHAT THEY WANT

When you write for a QSL card, your report should include three basic elements: the frequency, the date, and the time you heard the program. Then prove that you heard the program by giving some details, like the name of the song, the topic of the news broadcast, and so on. SW stations use UTC time just like hams do, so be sure to use it in your report; also remember that the time shift could change the date you heard it. Also include the make of radio receiver and type of antenna you use. Tell how well you received them. The more information you give, the better your chances of receiving a response.

If you really want to get into SWLing, you might want to try preprinted reception reports. These have several advantages over a letter. First of all, everything is already in place, so you can't forget to fill in all the necessary information. Also, the forms are printed in several languages so the mail clerk in lower Slabobia doesn't have to decode what you're saying.

If a station thinks you're genuinely interested in listening to them, they might be more responsive. Ask for their schedule. This indicates that you plan to tune in again and that you're not just a "card chaser."

WHEN WILL IT GET HERE?

Finally, be patient in waiting for a response. We often knock the U.S. Postal Service, but it's really light years ahead of post offices in other countries. Overseas mail is very slow. In one instance, the staff of a post office in a foreign remote area took a week off for a religious celebration. When they returned to a mountain of undelivered mail, their solution was to burn it all. (How's that for an excuse to the I.R.S.?)

73, de Matt J. McCullar, KJ5BA ❑

For holiday gift ideas, see pages 22 and 23

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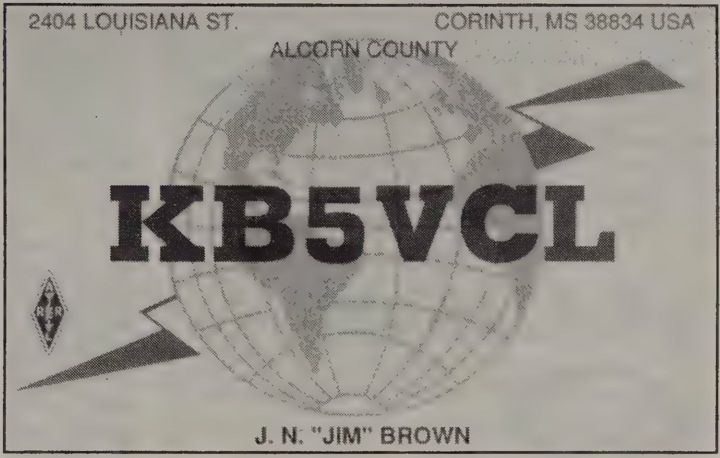

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LETTERS

Dear Don:

Here is a problem we are running into, and I am sure it's taking place in other parts of the country too. It happens mostly on two-meter repeaters—what I call the "CB Syndrome." These are individuals who were poorly trained, or have no training at all before they were given a license. In your article, you wrote "we should document all that is taking place, the time, frequency, etc. But we have no FCC backup. They don't care anymore. So in essence, it's like going into a war with no Army. When the code is gone, and the test gets simpler and simpler, the FCC will have all the Amateur frequencies.

James W. Searcy, WA5WRE
Poplarville, Miss.

James, I share your frustration but feel your ire is misdirected. It is not the ease of testing that causes these problems, but sheer numbers. The last eight FCC citations, in the past 12 months, were against General, Advanced and Extra Class hams. The ninth one was given to a codeless Tech, the first in more than two years of the codeless license existence. My comments about collecting information for the FCC were in the case of clear violations of Part 97, the Rules and Regulations that govern Amateur Radio. There is no law against rudeness and inconsiderate operation. Worse still, if some potty-mouth creep gets on the repeater, there is nothing the FCC can do about it at the moment. This is part of the baggage that comes along with freedom of speech and our rejection of pornography laws. I don't know the answer, James, but maybe no-code Tech classes should put more emphasis on The Amateur's Code (it is printed elsewhere in this issue).

Dear Don:

Before I got your *Communicator* magazine at a hamfest, I was in the process of start S.M.A.R.T. (Southern Mississippi Amateur Radio Training). I'm interested in how I could benefit from NARA. I figure maybe others have such schools going, and I wonder if there is a need for a "News From The Local Schools" area? I'm also surprised at how many people have heard to my project. How do I get the word around? My worst complaint in ham radio is the ones who have Extra Class and don't understand even basic electronics. It's a shame that a person can have the Extra and not understand even the basics of capacitance and

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inductance, or that wavelength and frequency are inversely related.

Robert Beckstein, K5QKY
Biloxi, Miss.

Sounds like you should get together with James in Poplarville (see previous letter). And, who knows, you may get a contact from having your letter appear in The Amateur Radio Communicator.

Mr. Stoner:

I am the secretary of our club and all the members are talking about the way NARA is keeping the ARRL from being able to assign club call signs. We would like one of these and I know some of the other clubs around here would too. I think your outfit stinks!

Dear Ms. Nameless:

We have far too much class to try and sway public opinion in the media or by sending out slanted, self-serving press releases. But when the matter of Call Sign Administrators is decided by the Commission, we'll have a lot to say—from Senate to selection. Have a nice day.

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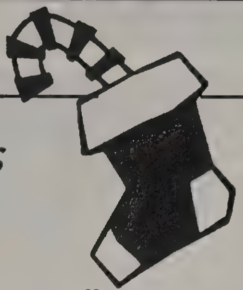


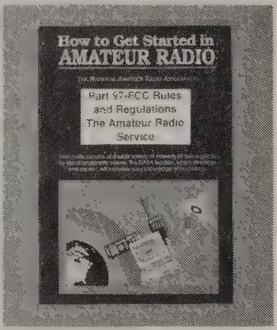
Holiday Stocking Stuffers

NEW PRODUCTS FROM NARA

Three new products will make great stocking stuffers.

Are you wondering what to get the hams in your life for the holidays? We have three suggestions this month—three new products that NARA has added to our expanding line of training, testing and educational materials.

Do You Know The Rules?—*Part 97- Amateur Radio Rules and Regulations* is the latest addition to NARA's mini-book library. A must for every hamshack, this is the most current copy of the rules that you can buy—effective as of September 15, 1993. Contains the latest information on the new "business rules," Part 97.113), testing Novices under the VEC program, and the rules on Club and military recreation station call sign administration. This *Part 97* mini-book is only $3.95 (part # B703)


How to Get Started in AMATEUR RADIO
The National Amateur Radio Association
Part 97-FCC Rules and Regulations The Amateur Radio Service

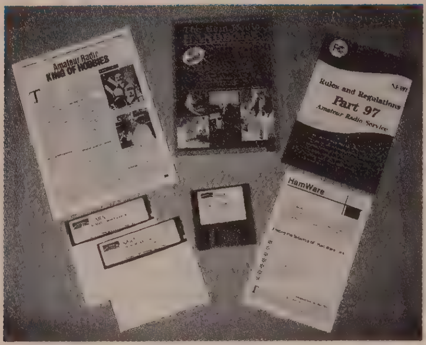
How Does SSB Work?—NARA also introduced another mini-book this month called "*Understanding Single Sideband (SSB)*". An increasing number of newcomers are upgrading to Tech Plus and General Class and heading for the high frequency (HF) bands below 30 MHz. The most popular voice mode, in this spectrum, is single sideband. This mini-book explains, in terms the beginner can understand, the difference between SSB and other voice modes, the advantages of sideband and how SSB signals are created and received. *Understanding Single Sideband (SSB)* (part # B704) is priced at $3.95.

How to Get Started in AMATEUR RADIO
The National Amateur Radio Association
Understanding Single Sideband (SSB)

Do You Like CW?—One of the most unusual products ever introduced by NARA is a "**software book**" called "*The Art & Skill of Radio-Telegraphy*" by William Pierpont, N0HFF. Bill is an "old timer" who has been collecting information on CW for years. He has made his work available to NARA for distribution to the Amateur Radio community. This is without question the most complete work on telegraphy code (Morse and others) ever written. If you want to learn Morse, or already enjoy operating CW, this is a MUST for your hamshack (who remembers McElroy?). Allows you to read any one of **30 chapters** on your CRT screen or print them out as desired. "*Art and Skill*" (part # B801) is compatible with all IBM type computers and is priced at only $9.95.

These new products from The National Amateur Radio Association are available at all major ham radio dealers. If your dealer does not stock those you want, you can order directly from NARA by calling 1-800-GOT-2-HAM.

HOLIDAY GIFTS FROM NARA



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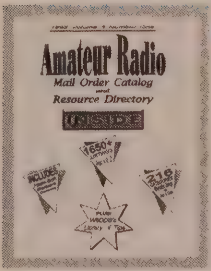
- Bonus Morse code training program (IBM) 0 to 25wpm
- Complete list of Contact Volunteer Examiners
- *King of Hobbies* publication, a special introduction to Amateur radio

The NARA Codeless Technician Package (IBM) is just $29.95 (3.00 S&H) #P110.

Having Trouble with Code?

The **Morse Academy,** IBM software, actually teaches all 43 required code characters and then steps you up through the Amateur Extra level using sophisticated computer aided instruction techniques. Adjustable tone, standard or Farnsworth spacing. Sends text or randomly generated characters—plus an on-disk manual! (5¼" disk) ***WAS*** **$14.95,** ***NOW ONLY*** **$9.95 ($1.50 S&H)** #S410.



NEW 1993!

Amateur Radio Mail Order Catalog And Resource Directory

Now bigger than ever! With **30 more pages, 30 new categories**, and over **150 more listings** it has never been a more valuable resource for your ham shack! You'll find everything from A to Z, including parts and equipment, kits and keyers, QSL cards, even personalized hats, mugs, and license plates. There's an extensive listing of radio clubs worldwide, international radio magazines, and over 100 free catalogs available just waiting to be requested!

Use it again and again as you reference products, clubs, catalogs, shareware and much, much more! The ***Amateur Radio Mail Order Catalog and Resource Directory*** **with 260 pages is only $14.95 ($3.00 S&H)** #B660.

HamWare™ Testing Software

The **HamWare,** IBM compatible (5¼" and 3½" disks) testing software, provides all the practice you need to get your first license or to upgrade. Drawings and diagrams appear automatically on screen along with the appropriate questions, and there's even a practice mode, complete with hints, answers and help screens. There's even a handy on-screen scientific calculator. Your choices are mouse or keyboard selectable. As a bonus, each disk includes a copy of **Morse** software for learning Morse code.

- HamWare Nov/Tech Classes w/Morse #S210
- HamWare General Class w/Morse #S211
- HamWare Advanced Class w/Morse #S212
- HamWare Extra Class w/Morse #S213

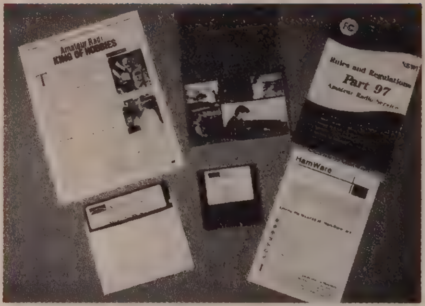
HamWare is available at Amateur Radio dealers or directly from NARA. License classes are sold individually. Each class is only **$14.95 ($2.00 S&H).**

NARA Amateur Training Package

Start with your Novice or no-code Technician license and go "all the way" to Extra class with this excellent IBM compatible training package that includes:

- HamWare Novice/Technician Classes w/Morse
- HamWare General Class w/Morse
- HamWare Advanced Class w/Morse
- HamWare Extra Class w/Morse
- 60-page *FCC Rules and Regulations, Part 97*
- *Amateur Radio—King of Hobbies*
- An extensive list of Contact Volunteer Examiners.

Save by ordering the **NARA Amateur Training Package.** This entire package (5¼" and 3½" disks) is only **$32.95 ($3.00 S&H)** #S220.



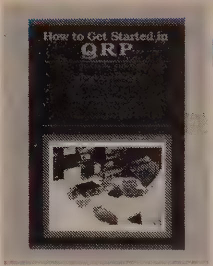
Upgrade to General Class with the NARAUPGRADE Package

NARA has put together all the essential tools you'll need to upgrade to General class. This value-packed offer includes:

- *UPGRADE! to General Class* by W6TNS
- HamWare General Class IBM (5¼" and 3½" disk) testing software w/Morse
- 60-page *FCC Rules and Regulations, Part 97*
- *Amateur Radio—King of Hobbies*
- An extensive list of Contact Volunteer Examiners

The **NARA Upgrade Package** is available at Amateur Radio equipment dealers or directly from NARA for only **$29.95 ($3.00 S&H)** #P240.

A FREE issue of ***The Amateur Radio Communicator*** will be mailed to you at a later date when you order any NARA product!



NEW!

Introduction to QRP!

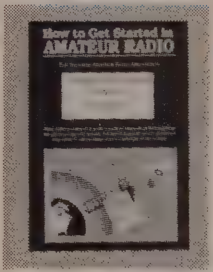
NARA does it again with its ***How To Get Started in QRP*** book. QRP (meaning low-power operation using five watts or less) offers a unique and exciting challenge for today's ham. Written by Dave Ingram, K4TWJ, "*QRP*" covers an overview of QRP, accessories, operating tips, power sources, homebrew, clubs, awards and more. With today's technology and equipment, working the world with QRP could be the ultimate challenge! ***How To Get Started in QRP*** is available at all major ham radio stores or directly from NARA for only **$9.95 ($2.00 S&H)** #B690.

MacHam™ Testing Software

MacHam is one of the most useful series of ham radio programs written for the "Mac." All required circuit diagrams are displayed with the question on the screen. If the test is printed, the diagrams are included.

The tests can be taken on screen, by element or by chapter, with options of immediate or end-test scoring. Printouts create exact VE style exams, with question pool numbers, correct and blank answer sheets.

- MacHam Nov/Tech #S310 **$39.95 ($2.00 S&H)**
- MacHam General #S311 **$29.95 ($2.00 S&H)**
- MacHam Advanced #S312 **$29.95 ($2.00 S&H)**
- MacHam Extra #S313 **$29.95 ($2.00 S&H)**



NEW!

How To Get Started In Amateur Radio

Learn things about your handheld radio that the instruction manual forgot to mention. Don Stoner's new information booklet, *Understanding Your Handheld Radio* (#B701), completes your knowledge of controls, switches, antennas, specifications and accessories.

Bill Pasrernak, WA6ITF, has written the second book in the 'getting started" series called *A Beginner's Guide to FM And Repeaters* (#B702). He fills in your knowledge on operating on repeaters, your first QSO, and so on. ***How To Get Started*** **booklets** are priced at **$3.95** from all major ham dealers or direct from NARA **($1.00 S&H).**

Order Today!

Learn the Code with these Outstanding Cassette Tapes!

These cassette tapes will give you the practice you need to pass your code exams. Each set contains two cassette tapes. Each set sold separately.

- Novice/Technician Class 0 to 5wpm #T710.
- General Class 5 to 14wpm #T720.
- Extra Class 12 to 24wpm #T730.

Order today for only **$11.95 ($2.00 S&H).**

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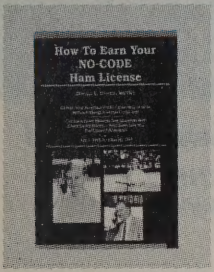
HOLIDAY GIFTS FROM NARA



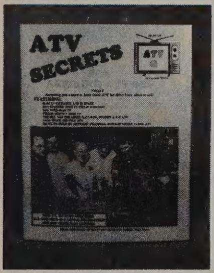
How To Earn Your No-Code Ham License

By Don Stoner, W6TNS, is the leading book for anyone wishing to earn the new code-free Tech license. Includes every question plus the multiple-choice answers.

How To Earn Your No-Code Ham License is the only test manual that includes simple and easy-to-understand theory along with many photos and illustrations. There are ten chapters covering each subelement. Sample tests are given at the end of every chapter with a list of correct answers at the back of the book. Guaranteed to provide all the information needed to get your ham radio license or your money will be refunded. ***How To Earn Your No-Code Ham License*** is only **$9.95 ($2.00 S&H)** #B610.

FCC Rules and Regulations

The FCC, Rules and Regulations Part 97, covers the guidelines and rules of the Amateur Radio service. This 60+ page book is an excellent reference for every class of license; a resource book no ham shack should be without! ***Rules and Regulations, Part 97, Amateur Radio Service*** is only **$4.95 ($1.00 S&H)** #B640.



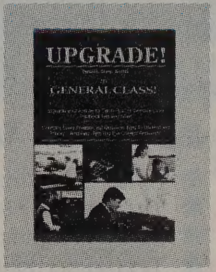
All About Ham Radio

This is the book that Don Stoner wishes he had written. Harry Helms, AA6FW, wrote this book in a manner that can be understood by everyone from young to old alike. Although not keyed directly to the question pools, it provides all the information you need to know to become a Technician Class Amateur.

Over 290 pages of jam-packed information including Hams And Their Radios, Customs, Habits And Other Good Stuff, Single Sideband, Ham Radio Meets the Personal Computer, Folklore, and much more.

For a book that covers so many different aspects of the Amateur radio hobby ***All About Ham Radio* is a steal at only $19.95 (3.00 S&H)** #B680.

Order Today!



UPGRADE! To General Class!

UPGRADE to General Class by Donald L. Stoner, W6TNS, shows "no-code" hams how easy it is to upgrade to the Tech-Plus or General Class license!

UPGRADE! has nine chapters covering each subelement of the General Class exam. All multiple-choice questions and answers for the General Class exam are included. Tips and special hints for learning the code and increasing your speed are also included!

UPGRADE! is available from Amateur Radio stores, or direct from NARA for **$9.95 ($2.00 S&H)** #B620.

Play It Up! With NARA's New Videotapes

Explore Amateur Radio through exciting videotapes! Directed by some of the best-known names in ham radio, these videotapes are the perfect addition to every ham's collection. Choose from the following:

Getting Started In Ham Radio. Covers the early stages of ham radio including station layouts, safety, choosing and setting up equipment and repeaters. By *CQ Videos*, **only $19.95 ($3.00 S&H).**

Getting Started On Amateur Satellites. A "how-to" guide for the newcomer wanting to work the world through Amateur satellites. Discusses equipment, DXing and more. By *CQ Videos,* **$19.95 ($3.00 S&H).**

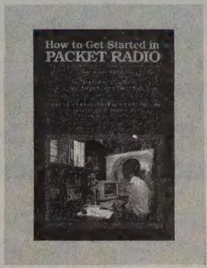
Getting Started in Packet Radio. A "how-to" guide to setting up a computer-to-computer station, getting on the air, QSOs, and operating packet effectively. By *CQ Videos*, **only $19.95 ($3.00 S&H).**

Getting Started in DXing. Successful DXers offer their tips on getting started, proper operating skills, snaring the rare ones, basic equipment and more. By *CQ Videos*, **only $19.95 ($3.00 S&H).**

Reading, 'Riting and Radio! Great for teachers and instructors, educator Carole Perry, WB2MGP, with her students and ham radio classes for children shows how beneficial and exciting ham radio is in school for teaching geography, world affairs, current events, math and more. **Only $19.95 ($3.00 S&H).**

CQ Field Day! Designed to help hams who want to set up their equipment in the great outdoors, this tape takes you to the award-winning 22A Field Day station. It shows you everything from setting up to packing up an outdoor radio station. **Only $19.95 ($3.00 S&H).**

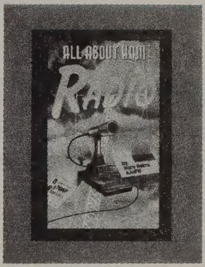
Ham Class. Well-known instructor, Gordon West, WB6NOA, helps prepare students and instructors to set up a ham class. The tape contains live classroom demonstrations and tips on setting up classes or training seminars. **Only $19.95 ($3.00 S&H).**



NEW!

Packet Radio For Beginners

NARA has done it again with ***How To Get Started In Packet Radio*** written by well-known author Dave Ingram, K4TWJ. This informative new book explains the practical side of packet radio in a simple-to-understand manner. It begins with a non-technical description of packet radio, followed by chapters including *Getting Started, Setting Up Your Station, Operating Packet to Networking* and *HF Operation.* There is even a *Packet Radio Equipment Survey* and an appendix that includes circuits for interfacing equipment! Get ***How To Get Started in Packet Radio*** **today for only $9.95 ($2.00 S&H).** #B670



ATV Secrets For Aspiring ATVers

ATV Secrets For Aspiring ATVers, written by Henry Ruh, KB9FO, contains everything you wanted to know about **Amateur Television (ATV).** All ham licensees can participate in ATV—*even those with the new no-code license!* Amateur TV is fun and exciting. Take your own home video productions, make new friends and get more enjoyment from your video equipment. Hams should be *seen* as well as heard!

ATV Secrets is available through all major Amateur Radio equipment stores, or direct from NARA for only **$7.98 WAS $9.98 ($2.00 S&H)** #B630.

The FCC Question Pools—

Each booklet contains all the questions and answers for each license class. Does not contain explanations. Order your booklet by license class.

- Novice and Technician classes together (all the questions for the new code-free Technician class license) **$4.95 (S&H $1.00)** #B650.
- General Class **$3.00 (S&H $1.00)** #B651
- Advanced Class **$3.00 (S&H $1.00)** #B652
- Extra Class **$3.00 (S&H $1.00)** #B653.

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NARA Is The *Only* National Organization

exclusively devoted to

Novice and Technician Class Amateurs!

Who Is The National Amateur Radio Association?

NARA is striving to publicize Amateur Radio to the general public, attract young people to the Amateur Radio Service, increase the stature and benefits of the Novice and Technician class license and save the various Amateur bands from confiscation by commercial interests.

Recently, Amateur Radio lost part of the 220-MHz band and, in some areas of the country, is in the process of *losing access* to another band (900 MHz).

We must get more people involved in the Amateur Radio Service so we can increase activity and retain our remaining Amateur bands.

NARA brings you an exciting future as an Amateur Radio operator!

Who Should Belong to the National Amateur Radio Association?

- Anyone interested in obtaining an Amateur Radio license
- New Amateur Radio operators of all classes
- Public and private school teachers who want to introduce their students to Amateur Radio
- Beginning Novice and Technician class Amateurs
- Elmers who want to assist beginners
- All Amateurs concerned about the future of the Amateur Radio Service

What Will You Gain when You Join NARA?

1. Knowledge to help you get the most from the Amateur Radio Service
2. You will insure a solid future for the Amateur Radio Service
3. You will be helping others become involved in Amateur Radio
4. Plus you receive our member journal, *The Amateur Radio Communicator!*

Join the National Amateur Radio Association and receive *The Amateur Radio Communicator!*

Here's What You'll Find in the *Communicator!*

- Colorful editorials by Don Stoner, W6TNS
- The electronic adventures of Dan and Burke
- Satellite communications
- Transmitter hunting
- Help passing your Novice or Tech exam
- Erecting your first antenna, propagation
- Types of Amateur Communication
- Pictures and news about other Novices and Technicians...The Future of Our Hobby
- Hot Tips—News you need as an Amateur
- Current information on the VE program
- Repercussions that regulation changes will have on the future of Amateur Radio

When you join NARA, your membership dollars will be used to ***further these goals***. Let's face it—with a membership cost of only $10.00 per year, ***you won't find a better value in Amateur Radio!!!*** Join today! It's easy. Just complete the subscription form below and mail your check or money order. For the fastest service, call 1-800-GOT-2-HAM(1-800-468-2426) with your Visa or MasterCard number.

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HOW DID I GET THIS MAGAZINE?

ONE OF THE WAYS WE CAN TELL THE WORLD ABOUT the goals and ambitions of the National Amateur Radio Association is to supply complimentary copies. We send about 10,000 pieces to newly licensed hams. This magazine is also mailed to a select list of people who might be interested in becoming Amateurs. We also send approximately 10,000 copies to NARA members and prominent people in Amateur Radio.

If your mailing label does not include a NARA membership number, this may be your last or only copy of *The Amateur Radio Communicator*. We would like to continue providing you with this informative publication, but we can only do so if you are a member of NARA. For those interested in becoming a ham, or who are newly licensed, a membership in NARA represents an outstanding bargain. A membership, which includes a subscription to *The Amateur Radio Communicator*, is only $10.00 per year.

Check the mailing label for your membership number. If you don't see one, look at the NARA advertisement and read the benefits of becoming a member of this fast-growing organization. We need your support and so does ham radio. Help us get it "going and growing!"

LIGHTS OUT!!

OPTOELECTRONICS turns out the lights on LED Counters...

...with the new 10 digit LCD MiniCounter.
More PERFORMANCE
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- 1 MHz - 2.8GHz Frequency Range
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The New Model 3300 MiniCounter breaks the LED counter tradition. From our first Model FC50 (1976) to our latest Model 2300, we have always had quality LED counters. But LEDs are power hungry, failure prone and unreadable in sun light. So the LED counter has now gone the way of the LED wristwatch— replaced by LCD. The LCD advantages include lower power, better reliability, smaller package, more information displayed and better viewing characteristics.

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SAVE $ 50

TS-850S: All-band HF transceiver with general coverage receiver, 100 watts•SSB slope tuning, CW variable pitch and reverse control, IF notch, 1-Hz fine tuning function•Superb receiver sensitivity and extremely quiet noise floor•SSB HIGH BOOST function to bust through the pile-ups•Filter options for both first and second IF sections•Built-in CW memory keyer (DRU-2 voice keyer optional)

SAVE $ 50

TS-450S: **All-band** HF transceiver with general coverage receiver,100 watts •Wonderfully easy to use, yet high-performance package•Filter options for superb receiver performance

SAVE $ 30

TS-50S: An exceptional compact, all-band HF transceiver, with 500 kHz to 30 MHz receiver. 100 watts. DDS with "fuzzy logic" control. Kenwood's Advanced Intercept Points (AIP) ensures top performance with reduced noise floor

SAVE $ 20

TM-241A: Wide band receiver coverage•CTCSS encode built-in•Three power settings: 5, 10, and 50 W•20 full-function memory channels store everything you need•Multiple scanning functions

SAVE $ 30

TM-732A: 50 watts on 2m, 35 watts on 70cm•Wide coverage receiver•CTCSS encode built-in, decode optional•50 memory channels•Unique S-meter squelch•Remote controllable via DTMF

SAVE $ 30

TM-742A: 2m, 50 watt/70cm,35 watt modular FM transceiver•101 memory channels for each band•CTCSS encode built-in•Wide band receiver•Optional modules for 28, 50, 220, or 1200 MHz•Remote-mountable front panel

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TH-28A: •2m pocket HT, 2.5 watts output •Sub-receiver for 70cm band•Alpha numeric display and message paging•CTCSS encode/decode built-in•Wide band receiver•40 memory channels

SAVE $ 20

TH-78A: Full duplex cross-band operation•CTCSS encode/decode built-in•Alpha numeric display and message paging•Wide band receiver •50 memory channels •Sliding keyboard cover and illuminated keypad

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